

much lower in the series than the Olean conglomerate of Pennsylvania was another important contribution to our knowledge.

But his best discoveries were in the Anthracite region. He revolutionized our old ideas of the cross-sections; discovered the most remarkable overlaps and plication faults in the bottoms of the synclinals; and in a word differentiated the simple structure of Whelpley and McKinley into a complicated series of unexpected irregularities; giving precisely that knowledge to the colliery engineers which they most needed.

Another important discovery resulted from his later work for Mr. Westinghouse in the Catskill region of New York, viz., that the great Ordovician (Siluro-Cambrian) limestone formation, topped by the Trenton, was greatly thicker than had been supposed, and consequently that its supposed thinning out from Pennsylvania northward towards Canada was, in a good degree, a mistake. Subsequently he was able to substantiate this important fact over a wider field in the West.

Lastly, I would cite his discovery of the true general rate of rise of the Palæozoic formations from Pennsylvania into Canada West, by his discussion of the recent borings on the south shore of Lake Ontario and the north and south shores of Lake Erie. The slope from Franklin to Erie had been pretty well fixed in 1840; and Carll's measurements had made the rate more accurate; but we have it now in a perfectly reliable form, with a constant that cannot be well altered.

His discovery that some of the western petroleum comes from the drift was one of many minor additions to our knowledge made by this admirable field geologist, who has passed away in his prime, yet so young, leaving us only to regret that our science has not a larger store of them.

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*Obituary Notice of Henry Simmons Frieze, LL.D.*

*By James B. Angell, Ann Arbor, Mich.*

*(Read before the American Philosophical Society, March 7, 1890.)*

Henry Simmons Frieze, LL.D., was born in Boston, Mass., September 15, 1817, and died in Ann Arbor, Mich., December 7, 1889. He was the son of Jacob Frieze and Betsy (Slade) Frieze. His father, who was a native of Rhode Island, and, during most of his life, a resident of that State, was for several years the pastor of Universalist churches in Massachusetts and in Rhode Island. Subsequently, he became an editorial writer for newspapers in Providence, and in the days when pamphlets were one of the main instruments in political warfare, he was somewhat noted in Rhode Island for his skill as a pamphleteer.

The son was obliged at an early age to gain his own livelihood. He served first as a clerk in Providence, and then engaged in teaching music

and playing the organ in Newport. He made a hasty preparation for college, and entered Brown University in 1837. Through his conspicuous musical talent he supported himself during his college course. He graduated in 1841 with the first honors of his class.

He was at once appointed Tutor in Latin, and discharged the duties of that post for three years with eminent success. In conjunction with a classmate he then took charge of the University Grammar School in Providence, and assisted in the conduct of it until 1854. Many of the men who have since been prominent in Rhode Island affairs were trained there either for business life or for admission to college.

In 1854, Mr. Frieze was appointed to the chair of Latin in the University of Michigan, a position which he held to the day of his death. It has always been deemed by the friends of that University a singular good fortune which brought it in its early days so accomplished a classical scholar and so refined a gentleman as Prof. Frieze. He awakened at once a fervid enthusiasm for the studies he taught, and has during his long life exerted a remarkable influence in promoting a taste for literary and æsthetic culture.

He has published editions of Virgil and of Quintilian which have received the warm approbation of our best scholars. He also wrote a volume, which was published in London, on the art-life of the eminent Italian sculptor, Giovanni Dupré. It contained translations of two dialogues on Art by Prof. Conti, of Florence. Two addresses of his are noteworthy; one a commemorative discourse on Dr. Tappan, the first President of the University; the other on the subject of Religion in State Universities, delivered at the semi-centennial celebration of the University, in 1887.

Three times he held the office of Acting President of the University, from 1869 to 1871, from June, 1880, to February, 1882, and from October, 1887, to February, 1888. For fourteen years he was Dean of the Literary Faculty. His reports as Acting President attracted attention as very able discussions of University problems. Especially vigorous was his argument in his Report for 1881 in favor of shortening the college course from four years to three. Probably few men in the country had more carefully considered the questions of University administration, whether in Europe or in America. Several of the very important innovations which have been successfully introduced into the University of Michigan in the last twenty-five years owed their origin to him. Conspicuous among these is the system of admitting students without examination from preparatory schools which have been visited by a committee of the Faculty and approved. The plan has now been widely adopted, sometimes without the precautions with which he guarded it. The introduction of the elective system, the conferring of higher degrees only on examination, and the establishment of a Professorship of Music, found in him an effective advocate.

He was a most attractive and inspiring teacher. He was passionately

fond of art, whether painting, sculpture, architecture, or music. He was an accomplished pianist and organist. He lectured on the history of art for many of the last years of his life. His critical judgment of works of art had been cultivated by prolonged residence in Europe. He was a man of sensitive and delicate nature. His modesty was almost a fault. He was the most agreeable of companions and the most faithful of friends. A more refined, gentle, cultured, lovable man, one would seldom meet. Withal he had a most devout spirit. He was almost from boyhood a communicant of the Protestant Episcopal Church, but was in most catholic relations with Christians of every name. He represented the finest type of American scholar, college officer, Christian gentleman.

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*Obituary Notice of Franklin B. Gowen.*

*By Richard Vaux.*

*(Read before the American Philosophical Society, March 7, 1890.)*

Called to our Federal Capital, in the District of Columbia, by onerous and perplexing professional engagements, Franklin B. Gowen there died on the 14th day of December, 1889.

His life was remarkable. It was a lesson and an example. His mind was of more than exceptional power. His energy seemed exhaustless. A courage that met, without hesitancy, opposition and antagonism, was animated by a temperament so sanguine, that defeat was obscured by the brilliant promise of anticipated success.

Mr. Gowen was devoted to literature, assiduously cultivating his taste for its highest standards, proficient in scientific knowledge, to which he applied intelligent study, and an eloquent, impressive and learned lawyer.

He possessed capacities for the management of great enterprises involving great interests, so that it may be said of him, he was the peer of the distinguished men of his day.

His public speeches were masterly. In the discussion of principles, the treatment of details, grouping the arguments as to each, he brought out the strongest points of his contentions with a forensic ability recognized to be of a high order.

He was capable of augmented possibilities. His memorable and successful effort to maintain the safeguards of imperilled rights and public security attests his force of character, latent till stimulated into action. This statement is not amenable to the criterion of a too florid coloring; it is rather in harmony with the natural tints of his character.

Earnest, aggressive, sanguine, capable, laborious, his capacities and acquirements were forces that demonstrated his powers. It has been said by high authority, that if elsewhere, certainly in Philadelphia, her most